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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,569	07/10/2006	Stephen John Gibbon	A1116/20341	4463
3000 7590 08/19/2009 CAESAR, RIVISE, BERNSTEIN, COHEN & POKOTILOV, LTD. 11TH FLOOR, SEVEN PENN CENTER 1635 MARKET STREET PHILADELPHIA, PA 19103-2212				
EXAMINER PETTTTT, JOHN F				
ART UNIT 3744		PAPER NUMBER		
NOTIFICATION DATE 08/19/2009		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@crbcp.com

Office Action Summary

Application No.

10/550,569

Applicant(s)

GIBBON, STEPHEN JOHN

Examiner

John F. Pettitt

Art Unit

3744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 June 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 4, 5, 7, 11-14, 16-19, 23-26, 30 and 31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 4, 5, 7, 11-14, 16-19, 23-26, 30 and 31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 06/03/2009
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. **Claims 1, 4-5, 7, 11-14, 16-19, 23-26, and 30-31** are objected to because of the following informalities:

In regard to claim 1, the recitation, "Apparatus for the cryogenic distillation of air" (line 1) should read --An apparatus for cryogenic distillation of air-- to properly introduce the apparatus of the independent claim and to resolve the lack of antecedent basis relative to distillation of air.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 1, 7, 11, 13-14, 19, 23-25, and 30-31** are rejected under 35 U.S.C. 102(b) as being anticipated by Grenier (US 5,412,954) hereafter Grenier.

In regard to claims 1, 19, 23-25, and 30-31, Grenier teaches an apparatus and method for cryogenic distillation of air, said apparatus being an assembled unit (Fig. 3) comprising: a first distillation column module (15, 20) within which is provided at least one cryogenic distillation column (1B); a further distillation column module (15A) within which is provided at least one further cryogenic distillation column (1C), said further distillation column module (15A) being mounted on top of said first distillation column

module (15, 20; relative directionality only); a heat exchange module (19) within which is provided heat exchange means (2) for cooling column feed air to a cryogenic distillation temperature (column 3, lines 15-20), the heat exchange module (19) being adjacent the first distillation column module (15, 20) and the further distillation column module (15A); and at least one further processing unit (any or all of 3, 4, 5, 6) adjacent the first distillation column module (15, 20), the further distillation column module (15A), the heat exchange module (19), wherein each of the at least one distillation column (1B), further distillation column (15A), said heat exchange means (2) and the further processing unit (any or all 3, 4, 5, 6) are operationally interconnected (see Fig. 3) and wherein said assembled unit (Fig. 3) is suitable for transportation as a single pre-assembled unit from a first location to a second location at a substantial distance from the first location (fully capable thereof) and the single pre-assembled unit is suitable for erection at a site for a cryogenic air separation plant (column 1, lines 45-50); wherein each module of the apparatus is attached directly to at least one adjacent module (19, 15, 20, 15A are all attached); wherein each module of the apparatus is attached in position relative the first distillation column module (15, 20; all components are relatively positioned) by a framework (19, 20, 15, 15A) of support members (inherent parts of 19, 20, 15, 15A that hold in place the flow components); and capable of being used to in the construction of a cryogenic air separation plant (column 2, lines 40-45) and produce at least 3500 metric tons/day of O₂. Grenier further teaches constructing the apparatus (column 1, lines 52-55; column 3, line 65- column 4, line 8) and transporting the assembled unit to the site for cryogenic air separation (column 1, lines 53-54; column 1, line 8, 35).

In regard to claims 7, Grenier teaches that the first distillation column module (15, 20) comprises a high pressure distillation column (1B), said apparatus further comprising a second distillation column module (15) within which is provided a low pressure cryogenic distillation column (1A).

In regard to claim 11, Grenier teaches that the at least one further processing unit (3, 4, 5, 6) is an air purification unit (4 - column 2, lines 45-50).

In regard to claim 13, Grenier teaches that the at least one further processing unit (3, 4, 5, 6) is a compressor (3).

In regard to claim 14, Grenier teaches that the at least one processing unit (3, 4, 5, 6) is a chiller tower (6).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. **Claims 4-5** are rejected under 35 U.S.C. 103(a) as being unpatentable over Grenier in view of Bracque et al. (US 5,349,827) hereafter Bracque (827). Grenier teaches all of the claim limitations of claims 4-5 but does not explicitly teach that the diameter of the column (1B) is over 3.5 meters or about 5 or 6 meters (16-19 feet). However, Grenier teaches that columns are of substantial column diameters. Further, it is routine practice in the art to size the column diameter to meet the flow demands and throughput goals of the system. Finally, Bracque (827) teaches distillation column diameters of about 5 meters (column 2, lines 20-25). Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to employ the system of Grenier with columns having diameters of 5 meters as taught by Bracque (827) for the purpose of providing a sufficiently sized column for producing the desired throughput depending on the application at hand.

6. **Claims 12** is rejected under 35 U.S.C. 103(a) as being unpatentable over Grenier in view of Zarate et al. (US 4,957,523) hereafter Zarate. Grenier teaches all of the limitations of claim 12 but does not explicitly teach that the air purification unit (4) comprises at least two air purification vessels arranged in parallel, each vessel comprising at least one bed of carbon dioxide and/or water adsorbent material. However, the purification system of Grenier is generically taught as such systems are well known in the art, as is taught, for example, by Zarate. Zarate teaches an air purification unit (150) comprises at least two air purification vessels (160, 170), each vessel (160, 170) comprising at least one bed of carbon dioxide and/or water adsorbent

material (column 5, lines 65-67), said vessels (160, 170) being arranged in parallel and configured for use in a temperature or a pressure swing adsorption process (column 6, lines 1-15). Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Grenier with the air purification unit (150) of Zarate for the purpose of providing air purification continuously as well as regenerating one of the vessels (160, 170) during operation so that the purification system can have more production hours (relative to maintenance hours).

7. Claims 16-18 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grenier in view of Bracque et al. (US 5,461,871) hereafter Bracque (871).

In regard to claim 16-18, Grenier teaches all of the limitations of claims 16-18 but does not explicitly teach that the at least one further processing unit (3, 4, 5, 6) is provided within at least one further processing unit module. However, providing such a module is a simple extension or replication of what is practiced in Grenier; further Bracque (871) teaches an at least one further processing unit (any or all of 8, 9, 10, 14, 15, 17 at least) within at least one further processing unit module (1, 3) within which is provided pipe work (se lines) for operational interconnection of the further processing unit (any or all of 8, 9, 10, 14, 15, 17 at least) in fluid flow communication with other components (any of the other flow devices) of the apparatus (Fig. 1); in addition, Bracque (871) teaches a framework (connected collection) of supporting members (corners or connection portions between walls of modules 1, 3) and panels (walls)

provided between adjacent support members (corners) forming at least one enclosure (housings 1, 3) within the framework (connected collection) within which is provided the or at least one further processing unit (any or all of 8, 9, 10, 14, 15, 17 at least).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine the system of Grenier as discussed with the framework of Bracque (871) as discussed for the purpose of improving the simplicity of construction and of reducing the number of parts that need to be custom installed at the site.

In regard to claim 25-26, Grenier and Bracque (871) teach all of the limitations but do not explicitly teach that construction takes place at a dockside or a construction facility with access to a dockside for transportation by sea. However, it is clear that in order to build the device at a construction facility owned by the producer and then provide the device to a customer overseas one must build the device at a facility that has access to a dockside in order to provide the device over the seas as a matter of logistical and mechanical expedient. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the assembled unit from a construction site with access to the dockside for the purpose of convenient delivery of the unit over a sea.

Response to Arguments

8. Applicant's arguments filed 05/19/2009 have been fully considered but they are not persuasive.

1. Applicant's arguments (page 8) are that the amended claims 30 and 31 obviate the 112 second paragraph rejection. In response to the applicant's arguments, the examiner withdraws the rejection of claims 30-31 under 35 U.S.C. § 112 and 101.

2. Applicant's arguments (page 8, ¶ 5 - page 9, ¶ 1) are an allegation that Grenier does not teach that the first distillation column module is adjacent the heat exchange module because there is a space between them. In response to the applicant's arguments, the examiner disagrees that adjacent must be interpreted to mean in contact with no intermediary space, but rather interprets adjacent to mean near or neighboring; therefore the allegation is unpersuasive.

3. Applicant's arguments (page 9, ¶ 2) are an allegation that the system of Grenier is transported separately and not from one location to another as a single unit suitable for erection at a site. In response to the applicant's arguments, the examiner fully disagrees as a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. The apparatus is fully capable of being used and transported as claimed. And it is further noted that Grenier explicitly teaches the apparatus to be "easily transportable" (column 1, lines 49-50). Therefore, the allegation is unpersuasive.

4. Applicant's arguments (page 9-13) are that the previous rejection did not address all of the limitations as currently amended into claim 1. In response to the applicant's arguments, the examiner directs the applicant to the rejection above in this action.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John F. Pettitt whose telephone number is 571-272-0771. The examiner can normally be reached on M-F 8a-4p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler or Frantz Jules can be reached on 571-272-4834 or 571-272-6681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John F Pettitt /
Examiner, Art Unit 3744

/Cheryl J. Tyler/
Supervisory Patent Examiner, Art
Unit 3744

JFP III
July 31, 2009